be equal to the length of the longest code word of a code table but equal to the length of the longest code word actually occurring in a bit stream which belongs to a code table. This represents a further improvement in respect of the first embodiment of the second aspect of the present invention since the coding efficiency in the escape table is still not optimal despite this method. The maximum length of the code of this table (within a spectrum) is usually considerably shorter for technical coding reasons. The longest code word in the escape table is e.g. 49 bits long.

The longest escape table code word actually occurring in normal audio signals is typically about 20 bits long. It is therefore possible to further increase the number of raster points and thus the number of priority code words which can be aligned with the raster points by transmitting the length of the longest code word of a block. The raster length is then equal either to the actually occurring maximum code word length or the theoretical maximum code word length of the table currently being used, whichever has the minimum value. To determine the minimum it is possible to use either the actually occurring code word of each code table or simply the longest code word of all the code tables in an audio frame. This option also works for non-escape tables, i.e. for "basic" Huffman tables, but not nearly as efficiently as for the escape tables.

Transmitting the maximum length of a code word in a spectral section or block has another beneficial side effect. The decoder can then detect from the maximum length which has actually occurred whether a longer code word is present in a bit stream which may have been disturbed. Long code words normally signify a high energy of the spectral values. If a very long code word arises due to a transmission error this may result in a highly audible disturbance. Transmitting the maximum

length thus provides the means of detecting such an error in the majority of cases and of adopting countermeasures, which might be simply blanking out the excessively long code word or might be some more complicated form of concealment.

It is important to note that as many raster points as possible are wanted for error-tolerant and at the same time efficient coding. The number of raster points is, however, limited by the total length of the bit stream. This should not of course be lengthened as a result of rastering, since there would then be unused places in the bit stream, something which would contradict the philosophy of overall data compression. However, it must also be pointed out that a lengthening of the bit stream may well be accepted in the interests of a high degree of error tolerance in certain applications. Another point to be considered is that a raster should preferably be structured so that as many code words as possible start on raster points. The present invention thus permits effective flexibility in the choice of raster point distance as compared with the prior art. In the absolutely ideal case this flexibility would lead to each code word having a raster point assigned to it, something which involves considerable technical effort. The method of arranging the raster points, i.e. determining the distance between the raster points of each spectral section according to the relevant code table, permits a very close approximation to the optimal case, however, especially since not all the code words are psychoacoustically significant and since all the psychoacoustically less significant code words can be slotted into the bit stream between the rastered psychoacoustically significant code words so as to leave no unused places in the bit stream.

According to a third aspect of the present invention the code words are no longer arranged in the bit stream in a linearly increasing sequence as regards frequency but the code words

for different spectral values are "scrambled". In Fig. 1 it can be seen that there is to a certain extent an interleaved linear arrangement of the code words with frequency since the hatched priority code words are arranged in order of increasing frequency and the non-priority code words, which are not hatched, are also slotted into the bit stream in order of increasing frequency. If a so-called "burst" error were now to occur in the bit stream shown in Fig. 1, i.e. a disturbance which leads to the corruption of a number of successive code words, the code words 6, 7a, 2, 3 and 7b for example could be affected simultaneously.

In the corresponding decoded audio signal a disturbance which is spectrally relatively wide and thus likely to be distinctly audible would occur in the spectral band represented by the priority code words 2 and 3. The problem of burst errors is not very apparent from the very simple example in Fig. 1. In practice, however, it can be assumed that there will be many more than 5 raster points and that burst errors will often extend over a plurality of raster points, which can lead to a loss of data for a relatively wide frequency band. It is for this reason that, according to the third aspect of the present invention, the priority code words of the spectral values are preferably no longer arranged in ascending order as to frequency but are "mixed up" in such a way as to have a random or pseudo-random arrangement as regards frequency. The non-priority code words may also optionally be treated in the same way. In the case of a pseudo-random arrangement it is not necessary to transmit any information on the distribution as side information since this distribution can be set in the decoder a priori. As a consequence the loss of successive code words in the bit stream would not lead to the loss of a complete frequency band but simply to a very small loss in several frequency bands. This disturbance would scarcely be audible and